REMARKS

Review and reconsideration on the merits are requested.

By way of the present RCE, Applicants change the format of the claims from "sizing agent" to "method" claims. Independent claim 20 is based on the specification at page 12, lines 23-25.

The remaining claims beginning with claim 21 essentially parallel original claims 2-16 in that order except that there is no new claim corresponding to original claim 3.

The following rejections were posed in the Action of December 10, 2002:

Claims 1,2 and 9 were rejected as anticipated by Yoshimura et al. (Yoshimura).

Claims 1-16 were rejected as being obvious over JP '425 in view of Yoshimura.

IF THE EXAMINER REMAINS UNCONVINCED OF PATENTABILITY, A TELEPHONE INTERVIEW IS REQUESTED CONCERNING THIS APPLICATION.

The undersigned can be reached at the local telephone exchange: 202-293-7060.

With respect to the anticipation rejection over Yoshimura which was presented in the Action of December 10, 2002, quite clearly Yoshimura in no fashion suggests a method for sizing a paper with a sizing agent which comprises coating or impregnating a raw paper with a sizing agent comprising a water-soluable polysaccharide and cationic polyer.

With respect to the obviousness rejection which was presented in the Action of December 10, 2002 over JP '425 in view of Yoshimura, Applicants firstly submit that there is no motivation to add the isolated water-soluble soy polysaccharide of the extremely complicated system in Yoshimura and have any reasonable expectation to conclude that the same would be useful in a

method for sizing a paper with a sizing agent comprising a water-soluble soybean polysaccharide and a cationic polymer.

Applicants have analyzed both Yoshimura and JP '145 in detail in the past, most especially in their AMENDMENT UNDER 37 C.F.R. § 1.111 filed August 12, 2002, and will not repeat the same here. However, Applicants do wish to present certain remarks believed especially relevant with respect to any possible rejections of the method claims over Yoshimura or JP '425 in view of Yoshimura. The following background discussion I believe particular relevant, always keeping in mind, of course, that the claims are now method claims as opposed to sizing agent claims.

Yoshimura thus teaches a metallic powder pigment composition comprising at least a metallic powder pigment, a colorant, water and a water-soluble organic solvent, and further including a natural polysaccharide, and a water-soluble soy polysaccharide or water-soluble soy polysaccharide derivatives (Yoshimura at column 3, lines 56-61), wherein the metallic pigment preferably is coated by the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives which are used together with the natural polysaccharide, so that the water-soluble polysaccharide or water-soluble polysaccharide derivatives can effectively act on the metallic powder pigment. The water-soluble soy polysaccharide or water-soluble polysaccharide derivatives easily is/are absorbed in or linked by hydrogen bonding to the surface of the metallic powder pigment and the surface of the colorant, with the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives attaching the colorant to the metallic powder pigment (emphasis added) (see Yoshimura at column 4, lines 1-19).

Thus, in accordance with Yoshimura, the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives cannot be used independently, rather, must be used together with a natural polysaccharide selected from the group consisting of a microbial polysaccharide or derivatives thereof, a water-soluble vegetable polysaccharide or derivatives thereof, a water-soluble animal polysaccharide or derivatives thereof (see Yoshimura at column 4, lines 59-63). Further, the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives of Yoshimura may be added as a binder component for the metallic powder pigment and the colorant in order to enable the colorant to fix to the metallic powder pigment, particularly on an aluminum powder pigment, thereby restraining viscosity changes caused by the natural polysaccharide so that viscosity stability is insured (emphasis added) (see Yoshimura at column 6, lines 51-59).

When Yoshimura wants to adjust the pH within the range of 8.0-10, an anionic polymer is used in a amount of 0.01-5 weight % as a resin for pigment dispersion which provides dispersion stability by preventing aggregation of the pigment and helps forming the Yoshimura ink film (see Yoshimura at column 10, lines 21-23, column 10, line 66 to column 11, line 3, column 11, lines 14-17, and column 13, line 65 to column 14, line 3). Yoshimura does not use a cationic polymer to adjust pH (emphasis added).

In the present invention, a surfactant is added to improve the water resistance of an image on recording paper. The reason why the surfactant improves the water resistance of the recording paper is presumed to be that dye is insolubilized by the reaction shown in Fig. 2. Since the hydrophobic group in side chains of the water-soluble soybean polysaccharide has affinity for a hydrophobic portion of the surfactant, the surfactant attaches to the side chains of the water-

soluble soybean polysaccharide such that the hydrophilic portion of the surfactant protrudes outward as shown in Fig. 2 (a). Since the hydrophilic portion of the surfactant becomes close to the hydrophilic portion of the dye (not pigment) contained in the ink, the dye also becomes close to the water-soluble soybean polysaccharide (Fig. 2 (b)). Thus, the dye is closely attracted to the cationic polymer pseudo-cross-linked with the water-soluble soybean polysaccharide, whereby the dye is insolubilized due to bonding of the cationic portion of the cationic polymer and the anionic portion of the dye (Fig. 2 (c)) (emphasis added) (see page 3, line 25 to page 4, line 12 and Figs. 2(a) - Figs. 2(c) of the specification).

In direct contrast to the above, Yoshimura simply teaches the possibility of using various types of surfactants in the Yoshimura aqueous metallic ink composition (Yoshimura, col. 11, line 66). However, Yoshimura fails to teach anionic, cationic, amphoteric or nonionic, etc., surfactants, and particularly fails to teach or suggest the use of a nonionic surfactant to improve image water resistance.

JP '425 is silent regarding a sizing agent containing a water-soluble soybean polysaccharide as an indispensable component for plain papers and a recording paper comprising a sizing agent as such (see the English translation of Paragraph No. [0041] of JP '425 attached hereto).

Applicants now address the combination of JP '425 and Yoshimura.

In Yoshimura the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives is/are not sizing components of the aqueous metallic ink composition, rather, may be added to the composition together with a natural polysaccharide as binder component for the metallic powder pigment (which, of course, is not soluble in water) and the colorant (pigment or dye) in

order to enable the colorant to fix on the metallic powder pigment, particularly on an aluminum powder pigment. Specifically, in Examples 12-13 of Yoshimura, water-soluble soy polysaccharides 1 and 2 are assigned to the class Binder Resin for Coloring (emphasis added) (see Yoshimura at column 22, lines 40-48, column 23, Table 5).

The aqueous metallic ink composition containing both a natural polysaccharide and a water-soluble soy polysaccharide or water-soluble polysaccharide derivatives of Yoshimura makes it difficult for the colorant to penetrate into the absorbent surface (such as a drawing paper), whereby any decrease in density of color development at the ink film can be restrained (see Yoshimura at column 3, line 62 to column 4, line 1). It is important to note that the Yoshimura water-soluble soy polysaccharide or water-soluble polysaccharide derivatives can be replaced with a cyclodextrin or cyclodextrin derivatives having hydroxyl groups. A hydroxyl group of the cyclodextrin or cyclodextrin derivatives acts on the metallic pigment powder and the hydrophilic characteristic of the metallic powder pigment are increased in the same manner as with the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives (see Yoshimura at column 3, lines 6-31).

Thus, in Yoshimura a metallic powder pigment is coated with cellulose derivatives such as cyclodextrin or a cyclodextrin derivative and a water-soluble soy polysaccharide or water-soluble polysaccharide derivative so that the influence of metal ion on the natural polysaccharide can be restrained or prevented by controlling the elution of metal ion into the Yoshimura ink composition. Even though the Yoshimura ink composition contains cellulose derivatives, the aqueous metallic ink composition of Yoshimura has high stability in dispersion because the

cellulose derivatives are used with a natural polysaccharide (emphasis added; see Yoshimura at col. 2, lines 55-63).

It is believed appropriate to analyze the mechanism involved in Yoshimura. Analysis of that mechanism establishes the basic and essential differences between the present invention and Yoshimura and why the combination of JP '425 and Yoshimura could not result in the present invention. In more detail, the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives of Yoshimura is/are easily absorbed in or linked by hydrogen bonding to the surface of the metallic powder pigment and the surface of the colorant, whereby the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives attach the colorant to the metallic powder pigment. As a result, a writing with a vivid metallic color can be obtained. The aqueous metallic ink composition of Yoshimura thus has the ability to restrain viscosity changes and to maintain the state of a stable ink composition over time because of the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives (see Yoshimura at column 4, lines 17-19).

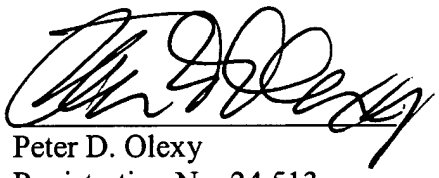
As a consequence, there would be no motivation for one of ordinary skill in the art, based on the combination of JP '425 and Yoshimura, to reach the present invention.

Withdrawal of all rejections and allowances is requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1-19 are canceled.

Claims 20-34 are added as new claims.